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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,243	04/26/2006	Takashi Otoi	060338	2486
23850 7590 01/02/2008 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005			EXAMINER GEISEL, KARA E	
			ART UNIT 2877	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,243	<b>Applicant(s)</b> OTOI, TAKASHI	
	<b>Examiner</b> Kara E. Geisel	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>0406</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement filed April 26<sup>th</sup>, 2006 has been considered by the examiner.

### *Drawings*

The drawings are objected to because it appears from the specification that fig. 4 should be given a label of prior art, since only that which is old is disclosed in the drawing. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

Appropriate correction is required.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Objections*

Claims 1-4 are objected to because of the following informalities: inconsistent wording throughout the claims.

In regards to claim 1, line 3, there is claimed "photodetection elements", while in line 20, and the rest of the claims, they are referred to as "the pixels".

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Regarding claim 1, line 7, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 1 is incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: generally, there is not a clear "flow" between the light source to the final processing devices (for example, from figs. 1-3: light from the light source is sent through a sample, the light transmitted through the sample is received by a spectrometer, the spectrometer comprises a dispersing element, which disperses the received light and then sends the light to a detector, the dispersed light is detected and then a preamplifier amplifies the detected light, etc.). Furthermore, it is not clear from the claim if there is a pre-amplifier and drive circuit for each of the main light reception unit and the sample-use reception unit, or if both signals are sent to one set of pre-amplifiers and drive circuits (lines 13-14); it is not clear where the analogue circuit unit is in relation to the rest of the device (line 18), or how the reference value from the main reception unit is obtained by the digital comparison means (line 37).

In regards to claim 1, line 19, "the amplification systems", there is lack of antecedent basis for this limitation within the claim.

In regards to claim 1, lines 42-43 it is not clear what is meant by "the number of significant digits of the digital value is not reduced". Clarification is required.

In regards to claims 2-4, the claims are generally confusing and not understood. Clarification is required.

In regards to claim 3, it is not clear whether the limitations within the parenthesis are part of the claimed invention.

**The interpretation of the claims by the Examiner, for the sake of applying art, is set forth below in the rejections.**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fakuma (USPN 5,106,190) in view of well known practices in the art, and further in view of Baun et al. (US Pubs 2006/0092508).

In regards to claim 1, Fukuma discloses a spectrophotometer (fig. 1) comprising a light emission means that emits light (1); a main light reception unit having a charge accumulation type photodetection element (15) which receives incoming light (arrow towards 15) which has been emitted by the light emission means, transmitted through an article to be measured (4), and been spectrally separated by a spectrometer (2; it is not disclosed in the claim where the spectrometer has to be in relation to the sample, therefore, it could be before the sample, as disclosed by Fukuma); a sample use light reception unit (15) for detecting received light of a specified wavelength or wavelength band (when the light from the light source, 1, goes through the reference, 3, the light received by 15 is a specified wavelength or wavelength band); a pre-amplifier and drive circuit (16) for the main light reception unit and the sample use light reception unit; a variable gain amplification circuit (17) whose gain can be varied by a digital instruction

(via 19); and an A/D converter (18) for converting an analog voltage from the variable gain amplifier to a digital value; and further comprising a digital means (20) for performing the operation of: reading the charge accumulation on the sample use reception unit during measurement (15; in this case, measurement of reference 3), amplifying the analog voltage from the sample use reception unit (via 16 and 17), subjecting the amplified signal to A/D conversion (via 18) comparing the converted signal to a reference signal and, based on this comparison, setting the gain of the variable gain amplifier (column 2, lines 40-55), and after setting the gain, acquiring a wavelength characteristic of the article (4) by emitting light via the light emission means (1), passing the light through the article (4), measuring light received by the main light reception unit (15), passing the measured light through the pre-amplifier (16), passing the amplified light through the variable gain amplifier (17), passing the secondly amplified light through the A/D converter, and acquiring a wavelength characteristic of the article (4) by digital means (20, and column 2, lines 27-55).

Fukuma is silent to having the main light reception unit having a group of charge accumulation type photodetection elements. Fukuma does disclose that the unit used is a photodiode (column 1, line 60). The examiner take Official Notice that a photodiode is an optical equivalent to a CCD which is a group of charge accumulation type photodetection elements, and that using a CCD instead of a photodiode would just be a matter of design choice, or availability of parts in the lab. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to replace the photodiode of Fukuma's spectrophotometer with a CCD which is a group of charge accumulation type photodetection elements as a matter of design choice, and depending on the availability of the detection elements within the lab. Fukuma is silent to having a zero-point compensation circuit located before the A/D converter and after the pre-amplifier and drive, and the variable gain amplifier.

Baun generally teaches that a zero-point compensation circuit is used for compensating for input offsets commonly exhibited by all amplifiers (§ 171). Therefore, it would have been obvious to one of

ordinary skill at the time the invention was made to include into Fukuma's spectrophotometer a zero-point compensation circuit located before the A/D converter and after the pre-amplifier and drive, and the variable gain amplifier in order to compensate for input offsets that would be exhibited by both the pre-amplifier and the variable gain amplifier.

*Additional Prior Art*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Hijikata (USPN 4,248,536).

Hijikata discloses a spectrophotometer comprising an amplifier and a zero-point compensation circuit.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
**Kara E. Geisel**  
**Art Unit 2877**

December 21, 2007